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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,066	05/07/2001	Tongwei Liu	HP-10012392	2859

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[REDACTED] EXAMINER

LE, MIRANDA

ART UNIT	PAPER NUMBER
2177	[REDACTED]

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/851,066	LIU ET AL.	
	Examiner Miranda Le	Art Unit 2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 07 May 2001.

2a) This action is FINAL.                  2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-22 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 1-2, 4-6, 8-9, 11-13, 15-16, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haimowitz et al. (US Patent No. 5,960,430), in view of Iyengar et al. (US Patent No. 6,351,561 B1).

**As to claims 1, 8, 15,** Haimowitz teaches “a) receiving a record comprising a plurality of variables, wherein said record comprises information for a first portion of said variables and wherein information for a second portion of said variables is incomplete” at col. 3, line 63 to col. 4, line 26, col. 3, lines 32-48, Fig. 3;

Haimowitz does not expressly teach the following limitations. However, Iyengar teaches:

“b) using a first classification tool to classify said record according to said information from said first portion of said variables” at col. 3, lines 6-20, col. 7, lines 8-27;

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"c) using a second classification tool to classify said record when said first classification tool requires a particular item of information that is missing from said second portion of said variables" at col. 3, lines 51-65, col. 6, lines 40-49.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Haimowitz with the teachings of Iyengar to include step b) and c) in order to provide a method and apparatus for generating a decision tree classifier with desired qualities for classification including prediction accuracy, speed of classification and understandability, and intuitiveness of the classification result.

**As to claims 2, 9, 16,** Iyengar teaches "first classification tool and said second classification tool are a first classification tree and a second classification tree, respectively" at col. 3, lines 6-20, col. 6, lines 40-49.

**As to claims 4, 11, 18,** Haimowitz teaches "ranking said plurality of variables according to their respective influence on said classifying; and grouping said plurality of variables into subsets of variables using said ranking" at col. 8, line 53 to col. 9, line 61, Table 1.

**As to claims 5, 12, 19,** Iyengar teaches "computing a classification tree for each one of said subsets" at col. 3, lines 31-65, col. 3, lines 6-20, col. 6, lines 40-67.

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**As to claims 6, 13, 20,** Haimowitz teaches “said record comprises customer information for a client, wherein content is selected for delivery to a customer according to said classifying of said record” at col. 1, line 53 to col. 2, line 37.

3. Claims 3, 7, 10, 14, 17, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haimowitz et al. (US Patent No. 5,960,430), in view of Iyengar et al. (US Patent No. 6,351,561 B1), and further in view of Johnson et al (US Patent No. 6,519,580 B1).

**As per claim 22,** Haimowitz teaches:

“a) ranking said plurality of variables according to their respective influence on said classifying” at col. 8, line 53 to col. 9, line 61, Table 1;

“b) grouping said plurality of variables into subsets of variables using said ranking, wherein a classification tree is computed for each of said subsets” at col. 9, lines 39-49;

“c) receiving a record comprising information for a first portion of said variables, wherein information for a second portion of said variables is incomplete” at col. 3, line 63 to col. 4, line 26, col. 3, lines 32-48, Fig. 3;

Haimowitz does not explicitly teach steps d) and e). Iyengar teaches:

“d) using a first classification tree to classify said record according to said information from said first portion of said variables, wherein said first classification tree is based on a substantially complete set of information for said plurality of variables” at col. 3, lines 6-20, col. 7, lines 8-27;

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"e) using a second classification tree to classify said record when said first classification tool requires a particular item of information that is missing from said second portion of said variables" at col. 3, lines 51-65, col. 6, lines 40-49,

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Haimowitz with the teachings of Iyengar to include step d) and e) in order to provide a method and apparatus for generating a decision tree classifier with desired qualities for classification including prediction accuracy, speed of classification and understandability, and intuitiveness of the classification result.

However, Haimowitz and Iyengar do not specifically teach "wherein said second classification tree is based on information for one of said subsets of variables of said step b), wherein said one of said subsets does not include said particular item of information that is missing". Johnson teaches this limitation at col. 14, lines 42-57, col. 15, lines 14 to col. 16, line 67, col. 17, line 63 to col. 18, line 21.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Haimowitz, Iyengar with the teachings of Johnson to include "wherein said second classification tree is based on information for one of said subsets of variables of said step b), wherein said one of said subsets does not include said particular item of information that is missing" in order to provide a method to automatically categorize messages or documents containing text.

**As to claims 3, 10, 17,** Johnson teaches "first classification tree is computed using a substantially complete set of information for said plurality of variables and wherein said second classification tree is computed using information for a subset of said plurality of

variables, wherein said subset does not include said particular item of information that is missing” at col. 14, lines 42-57, col. 15, lines 14 to col. 16, line 67, col. 17, line 63 to col. 18, line 21.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Haimowitz, Iyengar with the teachings of Johnson to include “first classification tree is computed using a substantially complete set of information for said plurality of variables and wherein said second classification tree is computed using information for a subset of said plurality of variables, wherein said subset does not include said particular item of information that is missing” in order to provide a method to automatically categorize messages or documents containing text.

**As to claims 7, 14, 21,** Johnson teaches “substituting a default value for said particular item of information that is missing” at col. 6, lines 6-50, col. 6, line 63 to col. 7, line 10.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Haimowitz, Iyengar with the teachings of Johnson to include “substituting a default value for said particular item of information that is missing” in order to provide a method to automatically categorize messages or documents containing text.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Miranda Le whose telephone number is (703) 305-3203. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene, can be reached on (703) 305-9790. The fax number to this Art Unit is (703) 746-7238. The TC 2100's Customer Service number is (703) 306-5631.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

*Miranda Le*  
Miranda Le  
July 21, 2003

  
GRETA ROBINSON  
PRIMARY EXAMINER